

Ser. No. 10/698,796
Amd. Dated: December 11, 2007
Reply to Office Action mailed November 21, 2007

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A control apparatus for moving an intraluminal shaft of a medical device, the apparatus comprising:

a housing having a longitudinally extending channel through at least a portion thereof, said channel having at least a first surface substantially inclined along a longitudinal direction; and

an actuator movably mounted to the housing, ~~the actuator being coupled to and having a portion with~~ first and second spaced-apart jaws disposed in the channel, the jaws being adapted for releasably gripping a shaft extending longitudinally through the channel, said first and second jaws defining an opening of a first dimension therebetween for receiving the shaft, said actuator being movable to urge at least one of said first and second jaws longitudinally along said first substantially inclined surface to transition said first dimension to a second dimension adapted to grip the shaft, whereby continued movement of the actuator may cause longitudinal movement of the shaft.

Claim 2 (Previously presented): The apparatus according to claim 1, wherein said second dimension is smaller than said first dimension.

Claim 3 (Previously presented): The apparatus according to claim 2, wherein the second dimension of said opening corresponds to a gripping dimension between said first and second spaced-apart jaws, and said first dimension corresponds to a release dimension between said first and second spaced-apart jaws.

Claim 4 (Previously presented): The apparatus according to claim 3, wherein said channel comprises:

a release region;

a first gripping region; and

a first transition region between said release region and said gripping region, said first transition region including said first substantially inclined surface.

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Claim 5 (Previously presented): The apparatus according to claim 4, wherein said release region has a width greater than an outside width of said first and second spaced-apart jaws.

Claim 6 (Previously presented): The apparatus according to claim 5, wherein said first gripping region has a width substantially equal to said outside width of said first and second spaced-apart jaws.

Claim 7 (Previously presented): The apparatus according to claim 4, wherein said first substantially inclined surface comprises a curved surface.

Claim 8 (Previously presented): The apparatus according to claim 4, wherein said first transition region further comprises at least a second substantially inclined surface, said first and second inclined surfaces for engaging said spaced-apart jaws respectively to reduce said first dimension.

Claim 9 (Withdrawn-previously presented): The apparatus according to claim 8, wherein said first transition region and said first gripping region extend in a first direction from said release region and further comprising:

a second gripping region; and

a second transition region between said release region and said second gripping region, said second transition region and gripping region extending from said release region in a second direction substantially opposite said first direction.

Claim 10 (Previously presented): The apparatus according to claim 1, wherein said channel has at least one surface positioned to limit motion of said actuator assembly.

Claim 11 (Currently amended): A control apparatus for moving a shaft of an intraluminal medical device in a first, longitudinal direction, the apparatus comprising:

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a housing having a longitudinally extending channel through at least a portion thereof and having at least a first surface substantially inclined along a longitudinal direction said channel being dimensioned to receive said medical shaft therein; and

an actuator movably mounted to said housing, ~~the actuator being coupled to and having a portion with~~ first and second spaced-apart jaws extending into said channel, the jaws defining an opening therebetween for receiving and releasably gripping said medical shaft, said channel further comprising:

a release region wherein said spaced-apart jaws do not engage said medical shaft;

a first engagement region wherein said spaced-apart jaws grip said medical shaft; and

a first transition region between said release region and said first engagement region for urging said spaced-apart jaws into engagement with said medical shaft.

Claim 12 (Previously presented): An apparatus according to claim 11, wherein said first transition region comprises first and second substantially opposed inclined surfaces separated by a first dimension proximate said release region and separated by a second dimension proximate said first engagement region, said second dimension being smaller than said first dimension.

Claim 13 (Previously presented): An apparatus according to claim 12, wherein movement of said first and second spaced apart jaws in a first direction causes said first and second spaced-apart jaws to move from said release region, through said first transition region to grip said medical shaft, and into said first engagement region to translationally move said medical shaft in said first direction.

Claim 14 (Withdrawn-previously presented): An apparatus according to claim 13, wherein said first transition region and said first engagement region extend in a first direction from said release region and further comprising:

a second engagement region; and

a second transition region between said release region and said second engagement region, said second transition region and said second engagement region extending from said release region in a second direction substantially opposite said first direction.

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Claim 15 (Withdrawn-previously presented): An apparatus according to claim 14, wherein movement of said spaced-apart jaws in said second direction causes said spaced-apart jaws to move from said release region, through said second transition region to grip said shaft and into said second engagement region to ~~translationally~~ move said shaft in said second direction.

Claim 16 (Withdrawn-currently amended): A method for moving an intraluminal shaft along a first direction, the method comprising the steps of:

aligning said intraluminal shaft between spaced-apart jaws of coupled to a movable actuator;

moving said actuator in a first direction while urging at least one of said spaced-apart jaws against at least a first deflecting surface to cause said spaced-apart jaws to grip said shaft; and

continuing movement of said actuator in said first direction to move said intraluminal shaft in said first direction.

Claim 17 (Withdrawn-previously presented): A method according to claim 16 further comprising:

moving said actuator assembly in a second, opposite direction to urge said spaced-apart jaws against at least a second deflecting surface causing said spaced-apart jaws to grip said intraluminal shaft; and

continuing movement of said actuator assembly in said second direction to move said intraluminal shaft in said second direction.

Claim 18 (Withdrawn-currently amended): A control apparatus for moving a first intraluminal shaft configured for telescopic movement with respect to a second intraluminal shaft, the apparatus comprising:

a housing having a longitudinally extending channel through at least a portion thereof, said channel having at least a first surface substantially inclined along a longitudinal direction, said channel being receptive to a portion of said first intraluminal shaft and a portion of said second intraluminal shaft, said housing having a longitudinal axis, a first end, and a second end;

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a clamp disposed within said housing and configured to prevent movement of said first intraluminal shaft parallel to said axis; and

a first actuator coupled to said housing, the first actuator being coupled to and having first and second spaced-apart jaws extending into said channel, said first and second spaced apart jaws defining an opening therebetween for receiving said second intraluminal shaft therethrough, said channel comprising:

a release region, wherein said interior surfaces of the channel do not deflect said spaced-apart jaws toward closure;

a first engagement region, wherein at least one interior surface of said channel deflects said spaced apart jaws to grip said second intraluminal shaft; and

a first transition region between said release region and said first engagement region for urging said spaced-apart jaws into engagement with said second intraluminal shaft as said first actuator pivots.

Claim 19 (Withdrawn-previously presented): An apparatus according to claim 18, wherein said first transition region and said first engagement region extend in a first direction from said release region and further comprising:

a second engagement region; and

a second transition region between said release region and said second engagement region, said second transition region and said second engagement region extending from said release region in a second direction substantially opposite said first direction.

Claim 20 (Withdrawn-previously presented): An apparatus according to claim 18, wherein movement of said spaced-apart jaws in said second direction causes said spaced-apart jaws to move from said release region, through said second transition region to grip said second intraluminal shaft and into said second engagement region to translationally move said second intraluminal shaft in said second direction.

Claim 21 (Withdrawn-previously presented): An apparatus according to claim 18, wherein said first intraluminal shaft is an outer hollow member and said second intraluminal shaft is an inner member coaxially moveable within said outer hollow member.

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Claim 22 (Withdrawn-previously presented): An apparatus according to claim 18 wherein said second intraluminal shaft is an outer hollow member and said first intraluminal shaft is an inner member coaxially moveable within said outer hollow member.